

**Notice of Allowability**

Application No.

10/716,050

Examiner

Kamran Afshar, 571-272-7796

Applicant(s)

WANG ET AL.

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1/23/2006.
2. ☒ The allowed claim(s) is/are 1-23.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 10/11/2005
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

Kamran Afshar, 571-272-7796  
Patent Examiner  
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## DETAILED ACTION

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Walter Malinowski Reg. No.: 43,423 on 1/23/2006.

The application has been amended as follows:

#### In The Claims(s):

1. (Currently Amended) An antenna arrangement for a radio device, comprising:

first and second antennas, whereby the first antenna operates on a first frequency band and the second antenna operates on a second frequency band, the second antenna drawing transmission power from the first antenna when the first antenna transmits radio signals on the first frequency band, the second antenna comprising

a radiating body having a first end and a second end, the second end selectively operating ~~being~~ operable as an open end;

a feed point between the first end and the second end; and

a detuning switch for grounding the radiating body at a ~~particular~~ point between the feed point and the second end such that the power draw caused by the second antenna from the first antenna to other antennas is reduced, the radiating body being disposed over a ground plane such that the

second ~~first~~ end overlies the ground plane and the first ~~second~~ end does not overlie the ground plane.

2. (Currently Amended) An antenna arrangement according to claim 1, wherein the detuning switch selectively grounds ~~has been configured to ground~~ the radiating body from substantially the second end.

3. (Currently Amended) An antenna arrangement according to claim 1, wherein the first end comprises a grounding point ~~to the ground plane~~.

4. (Currently Amended) An antenna arrangement according to claim 1, wherein the second antenna selectively operates ~~has been configured to operate~~ substantially as a quarter wave length antenna when in use.

5. (Currently Amended) An antenna arrangement according to claim 1, wherein the first end is open-ended when operating.

6. (Currently Amended) An antenna arrangement according to claim 1, wherein the second antenna selectively operates ~~has been configured to operate~~ substantially as a half wave length antenna when in use.

7. (Currently Amended) An antenna arrangement according to claim 1, wherein the second antenna is a multi-band antenna.

8. (Currently Amended) An antenna arrangement according to claim 1, wherein the second antenna is a Planar Inverted F-Antenna.

9. (Currently Amended) An antenna arrangement according to claim 1, wherein the tuning switch comprises a low insertion loss switch.

10. (Currently Amended) An antenna arrangement comprising a first antenna and a second antenna, whereby the first antenna operates ~~is operable~~ on a first frequency band and the second

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antenna operates ~~is operable~~ on a second frequency band ~~such that~~ and thereby the second antenna ~~can draw~~ draws transmission power from the first antenna when the first antenna transmits radio signals on the first frequency band, the second antenna comprising:

a radiating body having a first end and a second end, the second end selectively operating ~~being operable~~ as an open end; and

a feed point between the first end and the second end; the antenna arrangement further comprising:

a detuning switch for grounding the radiating body at a ~~particular~~ point between the feed point and the second end in order to reduce said power draw.

11. (Currently Amended) An antenna arrangement according to claim 10, wherein the detuning switch selectively grounds ~~has been configured to ground~~ the radiating body from substantially the second end.

12. (Original) An antenna arrangement according to claim 10, wherein the first end comprises a grounding point.

13. (Currently Amended) An antenna arrangement according to claim 10, wherein the second antenna selectively operates ~~has been configured to operate~~ substantially as a quarter wave length antenna when in use.

14. (Original) An antenna arrangement according to claim 10, wherein the first end is open-ended when operating.

15. (Currently Amended) An antenna according to claim 10, wherein the antenna selectively operates ~~has been configured to operate~~ substantially as a half wave length antenna when in use.

16. (Currently Amended) A radio device comprising a first antenna and a second antenna, whereby the first antenna operates ~~is operable~~ on a first frequency band and the second antenna operates

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~~is operable~~ on a second frequency band ~~such that~~ the second antenna ~~can draw~~ drawing transmission power from the first antenna when the first antenna transmits radio signals on the first frequency band, the second antenna comprising:

a radiating body having a first end and a second end, the second end selectively operating ~~being operable~~ as an open end; and

a feed point between the first end and the second end; the radio device further comprising:

a detuning switch for grounding the radiating body at a ~~particular~~ point between the feed point and the second end in order to reduce said power draw.

17. (Original) A radio device according to claim 16, wherein the radio device is a portable radio device.

18. (Currently Amended) A method of improving antenna isolation in a system comprising a first antenna and a second antenna, whereby the first antenna operates on a first frequency band and the second antenna operates on a second frequency band, the second antenna drawing transmission power from the first antenna when the first antenna transmits radio signals on the first frequency band, ~~wherein the second antenna can be idle whilst the first antenna operates~~, wherein the second antenna comprises a radiating body having a first end and second end and a feed point between the first end and the second end, the method comprising the steps of:

detuning the second antenna when idle by grounding the radiating body between the feed point and the second end; and

not terminating the grounding for the radiating body of the second antenna between the feed point and the second end when the second antenna is to be used.

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19. (Currently Amended) A method according to claim 18, wherein the steps of grounding and terminating the grounding take place automatically ~~depending on whether the isolation need to be improved and /or the antenna is needed for transmission and / or reception of radio signals.~~

20. (Currently Amended) A controller for a system comprising a first antenna and a second antenna, whereby the first antenna operates on a first frequency band and the second antenna operates on a second frequency band, the second antenna drawing transmission power from the first antenna when the first antenna transmits radio signals on the first frequency band, ~~where the second antenna can be idle and draw power from the first antenna whilst the first antenna operates,~~ wherein the second antenna comprises a radiating body having a first end and second end and a feed point between the first end and the second end, whereby the radiating body selectively grounds ~~has been configured to be alternatively grounded and not grounded at a particular~~ point between the feed point and the second end of the radiating body, the controller comprising means for causing the grounding when the second antenna is idle to detune the second antenna and not to detune the second antenna when the second antenna is in use.

21. (Currently Amended) An antenna according to claim 1, wherein the radiating body is a substantially flat band that is substantially parallel to the ground plane and bent at the first ~~second~~ end to provide an elongated radiator.

22. (Currently Amended) An antenna arrangement according to claim 10, further comprising a ground plane, wherein the radiating body of the second antenna is a substantially flat band that is substantially parallel to the ground plane and bent at said first ~~second~~ end to provide an elongated radiator, wherein the first ~~second~~ end protrudes beyond the ground plane.

23. (Previously Presented) An antenna arrangement according to claim 22, wherein the first and second antennas are physically separate.

***Allowable Subject Matter***

2. Claims 1-23 are allowed.

The following is an examiner's statement of reasons for allowance: 1-23.

With respect to claim 1, the prior art of record fails to disclose singly or in combination or render obvious that the second antenna drawing transmission power from the first antenna when the first antenna transmits radio signals on the first frequency band, the second antenna comprising a radiating body having a first end and a second end, the second end selectively operating as an open end; a feed point between the first end and the second end; and a detuning switch for grounding the radiating body at a point between the feed point and the second end such that the power draw caused by the second antenna from the first antenna is reduced, the radiating body being disposed over a ground plane such that the second end overlies the ground plane and the first end does not overlie the ground plane.

With respect to claim 10, the prior art of record fails to disclose singly or in combination or render obvious that the first antenna operates on a first frequency band and the second antenna operates on a second frequency band and thereby the second antenna draws transmission power from the first antenna when the first antenna transmits radio signals on the first frequency band, the second antenna comprising: a radiating body having a first end and a second end, the second end selectively operating as an open end; and a feed point between the first end and the second end; the antenna arrangement further comprising: a detuning switch for grounding the radiating body at a point between the feed point and the second end in order to reduce the power draw.

With respect to claim 16, the prior art of record fails to disclose singly or in combination or render obvious that the first antenna operates on a first frequency band and the second antenna operates on a second frequency band, the second antenna drawing transmission power from the first antenna when the first antenna transmits radio signals on the first frequency band, the second antenna comprising: a radiating body having a first end and a second end, the second end selectively operating as an open end; and a feed point between the first end and the second end; the radio device further comprising: a detuning switch for grounding the radiating body at a point between the feed point and the second end in order to reduce the power draw.

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With respect to claim 18, the prior art of record fails to disclose singly or in combination or render obvious that the first antenna operates on a first frequency band and the second antenna operates on a second frequency band, the second antenna drawing transmission power from the first antenna when the first antenna transmits radio signals on the first frequency band, wherein the second antenna comprises a radiating body having a first end and second end and a feed point between the first end and the second end, the method comprising the steps of: detuning the second antenna when idle by grounding the radiating body between the feed point and the second end; and not grounding the radiating body of the second antenna between the feed point and the second end when the second antenna is to be used.

With respect to claim 20, the prior art of record fails to disclose singly or in combination or render obvious that the first antenna operates on a first frequency band and the second antenna operates on a second frequency band, the second antenna drawing transmission power from the first antenna when the first antenna transmits radio signals on the first frequency band, wherein the second antenna comprises a radiating body having a first end and second end and a feed point between the first end and the second end, whereby the radiating body selectively grounds point between the feed point and the second end of the radiating body, the controller comprising means for causing the grounding when the second antenna is idle to detune the second antenna and not to detune the second antenna when the second antenna is in use.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
  - a) Avasarala (U.S. Pub. No.: 2005/0107043 A1).
  - b) Darden (U.S. 6,894,650 B2).
  - c) Kangasvieri (U.S. 6,624,789 B1).
  - d) Okubora (U.S. 6,753,815 B2).



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Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kamran Afshar whose telephone number is (571) 272-7796. The examiner can be reached on Monday-Friday.

If attempts to reach the examiner by the telephone are unsuccessful, the examiner's supervisor, **Feild, Joseph** can be reached @ (571) 272-4090. The fax number for the organization where this application or proceeding is assigned is **571-273-8300** for all communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**Kamran Afshar**

  
**JOSEPH FEILD**  
**SUPERVISORY PATENT EXAMINER**